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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/292,132	04/14/1999	SALMAN AKRAM	MI22-1171	3104
21567	7590	10/06/2004	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			MULPURI, SAVITRI	
			ART UNIT	PAPER NUMBER
			2812	
DATE MAILED: 10/06/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/292,132	<b>Applicant(s)</b> AKRAM ET AL. 	
	<b>Examiner</b> Savitri Mulpuri	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 6/30/2004, 7/15/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 51-53, 55-59, 62-75, 79-81 and 86-98 is/are pending in the application.
- 4a) Of the above claim(s) 55-59, 79, 87 and 92 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 62-75, 91-98 is/are allowed.
- 6) ☒ Claim(s) 51-53, 88, 89 and 91 is/are rejected.
- 7) ☒ Claim(s) 90 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/15/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This action is in response to the applicant's response filed on 6/30/04 and IDS filed on 1/2/2003 and 7/15/2004.

#### ***Claim Rejections - 35 USC § 112***

Claims 51-53, 91 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The is contradiction between the limitation of " forming gate proximate the gate oxide layer having the fluorine therein after providing step" and the limitation of "forming at least one sidewall spacer laterally adjacent the gate and directly over the gate oxide layer, the at least one sidewall spacer comprising fluorine for the providing". It cannot be contemplated the sidewall spacer comprising fluorine can be used for the providing after gate oxide having the fluorine therein and gate formed after providing step. Clarification requested.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Claims 88 is rejected under 35 U.S.C. 102(b) as being anticipated by NEC Corp (JP5251463) or Gilmer et al (US 5.840,610).

NEC Corp reference teaches forming gate oxide over the semiconductor providing fluorine in gate oxide; forming a gate proximate to the gate oxide having

fluorine therein after providing; and forming at least one sidewall spacer laterally adjacent the gate and directly over the gate oxide layer (see abstract and figure).

Gilmer et al also teaches forming fluorine "203" in gate oxide "222" and then forming gate.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 51, 52, 89 is rejected under 35 U.S.C. 103(a) as being unpatentable over NEC Corp. (JP525163) or Gilmer et al in combination with Gardner et al.

NEC Corp reference teaches forming gate oxide over the semiconductor providing fluorine in gate oxide; forming a gate proximate to the gate oxide having fluorine therein after providing; and forming at least one sidewall spacer laterally adjacent the gate and directly over the gate oxide layer (see abstract and figure).

Gilmer et al also teaches forming fluorine "203" in gate oxide "222" and then forming gate.

NEC Corp. reference or Gilmer et al do not teach spacers containing fluorine. Gardner et al teaches fluorine-containing spacers. It would have been obvious to one of ordinary skill in the art to form fluorine bearing spacers are to reduce the susceptibility of the resultant semiconductor device to hot carrier injection of electrons into gate electrode and gate oxide (see col.3, lines 25-40).

Neither references teach the concentration Normally, change in temperature, concentration, or both, is not patentable modification; however, such changes may impart patentability to process if ranges claimed produce new and unexpected result, which is different in kind and not merely in degree from results of prior art; such ranges are termed "uncritical" ranges, and applicant has burden of proving such criticality; even though applicant's modification results in great improvement and utility over prior art, it may still not be patentable if modification was within capabilities of one skilled in art; more particularly, where general conditions of claim are disclosed in prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller et al*, 105 U.S.P.Q. CCPA (1955).


Claim 53, 90, 91 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 62-75, 93-98 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Mon-Fri from 8 a.m. to 4.30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on 571-272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Savitri Mulpuri  
Primary Examiner  
Art Unit 2812